

AMENDMENTS TO THE CLAIMS

The claims are amended as follows:

1. (Currently amended) A method of indicating the presence of mechanical impact on a material, comprising the steps of
providing the material having a surface;
preparing an adherent, weather-resistant, discoloration-resistant indicator paint having an impact-sensitive component that produces a visible change when subjected to a mechanical impact, wherein the indicator paint comprises a mixture of a first reactant and a second reactant separated by a barrier that is rupturable so that the first reactant and the second reactant mix and produce the visible change when the indicator paint is subjected to the impact;
applying the adherent, weather-resistant, discoloration-resistant indicator paint to the surface of the material;
placing the material adherent, weather-resistant, discoloration-resistant having the adherent, weather-resistant, discoloration-resistant indicator paint thereon into circumstances where it may be subject to the mechanical impact, to weathering and discoloration; and thereafter
inspecting the material having the adherent, weather-resistant, discoloration-resistant indicator paint thereon for the presence of the visible change due solely to impact and not as a result of weathering or time-related discoloration.
2. (Original) The method of claim 1, wherein the step of providing includes the step of
providing the material as a low-ductility material having a tensile elongation to failure of less than about 2 percent.
3. (Original) The method of claim 1, wherein the step of providing the material includes the step of
providing a composite material having a tensile elongation to failure of less than about 2 percent.

4. (Original) The method of claim 1, wherein the step of providing the material includes the step of
providing a polymer-matrix composite material having a tensile elongation to failure of less than about 2 percent.

5. (Original) The method of claim 1, wherein the step of providing the material includes the step of
providing a ceramic material having a tensile elongation to failure of less than about 2 percent.

6. (Currently amended) The method of claim 1, wherein the step of preparing the adherent, weather-resistant, discoloration-resistant indicator paint includes the step of
preparing the adherent, weather-resistant, discoloration-resistant indicator paint having the impact-sensitive component that changes color when subjected to the mechanical impact.

7. (Cancel)

8. (Currently amended) The method of claim 1, wherein the step of preparing the adherent, weather-resistant, discoloration-resistant paint includes the step of
preparing the adherent, weather-resistant, discoloration-resistant indicator paint comprising
an encapsulated first reactant, and
the second reactant,
wherein the first reactant and the second reactant react together to produce the visible change upon the impact.

9. (Currently amended) The method of claim 1, wherein the step of preparing the adherent, weather-resistant, discoloration-resistant indicator paint includes the step of
preparing the adherent, weather-resistant, discoloration-resistant indicator paint that does not emit light when subjected to the mechanical impact.

10. (Currently amended) The method of claim 1, wherein the step of placing includes the step of
not instrumenting the material having the adherent, weather-resistant, discoloration-resistant paint thereon with light-detection instrumentation.

11. (Currently amended) The method of claim 1, wherein the step of inspecting includes the step of
inspecting the material having the adherent, weather-resistant, discoloration-resistant indicator paint thereon by an unaided eye.

12. (Original) The method of claim 1, including an additional step, after the step of inspecting, of
determining a design limit for the composite material responsive to an observability of impact indications.

13. (Currently amended) The method of claim 1, including an additional step, after the step of inspecting, of
determining a first design limit for the composite material in the event that it has the adherent, weather-resistant, discoloration-resistant indicator paint applied thereto, and a second design limit for the composite material in the event that it has no indicator paint applied thereto.

14. (Currently amended) A method of indicating the presence of mechanical impact on a composite material, comprising the steps of
providing the composite material having a surface, wherein the composite material has a tensile elongation to failure of less than about 2 percent;
preparing an adherent, weather-resistant, discoloration-resistant indicator paint having an impact-sensitive component that changes color when subjected to a mechanical impact, wherein the adherent, weather-resistant, discoloration-resistant indicator paint comprises
a first reactant, and
a second reactant,
wherein the first reactant and the second reactant are separated by a barrier that is ruptured when the indicator paint is subjected to the mechanical impact;

applying the adherent, weather-resistant, discoloration-resistant indicator paint to the surface of the composite material;

placing the composite material having the indicator paint thereon into circumstances where it may be subject to the mechanical impact, weathering and discoloration; and thereafter

inspecting the composite material having the adherent, weather-resistant, discoloration-resistant indicator paint thereon for the presence of a color change due solely to impact and not as a result of weathering or time-related discoloration.

15. (Currently amended) The method of claim 14, wherein the step of preparing the adherent, weather-resistant, discoloration-resistant indicator paint includes the step of preparing the indicator paint that does not emit light when subjected to the mechanical impact. adherent, weather-resistant, discoloration-resistant

16. (Currently amended) The method of claim 14, wherein the step of placing includes the step of not instrumenting the composite material having the adherent, weather-resistant, discoloration-resistant paint thereon with light-detection instrumentation.

17. (Currently amended) The method of claim 14, wherein the step of inspecting includes the step of inspecting the composite material having the adherent, weather-resistant, discoloration-resistant indicator paint thereon by an unaided eye.

18. (Original) The method of claim 14, including an additional step, after the step of inspecting, of determining a design limit for the composite material responsive to an observability of impact indications.

19. (Currently amended) The method of claim 14, including an additional step, after the step of inspecting, of determining a first design limit for the composite material in the event that it has the adherent, weather-resistant, discoloration-resistant indicator paint applied thereto, and a second design limit for the composite material in the event that it has no indicator paint applied thereto.

20. (Currently amended) An article comprising:
a substrate having a surface; and
[[a]] an adherent, weather-resistant, discoloration-resistant paint applied to the surface of the article, wherein the adherent, weather-resistant, discoloration-resistant paint comprises
a plurality of microcapsules, and wherein each microcapsules comprises a first reactant, and
a matrix comprising a paint binder and a second reactant, wherein the plurality of microcapsules is mixed with and embedded in the matrix, and wherein the first reactant and the second reactant produce a distinct color in the adherent, weather-resistant, discoloration-resistant paint when mixed.

21. (Currently amended) A method for establishing a design standard for a low-ductility material, comprising the steps of:
setting a first design standard for the low-ductility material having an adherent, weather-resistant, discoloration-resistant indicator paint applied thereto, wherein the adherent, weather-resistant, discoloration-resistant indicator paint has an impact-sensitive component that produces a visible change when subjected to a mechanical impact and not as a result due to weathering or discoloration; and
setting a second design standard for the low-ductility material, which does not have the adherent, weather-resistant, discoloration-resistant indicator paint, applied thereto.

22. (Original) The method of claim 21, wherein the step of setting the first design standard includes the step of
setting the first design standard with a unity damage-tolerance factor, and wherein the step of setting the second design standard includes the step of
setting the second design standard with a damage-tolerance factor greater than unity.

23. (Original) The method of claim 21, wherein the step of setting the first design standard includes the step of
setting the first design standard with a first damage-tolerance factor, and wherein the step of setting the second design standard includes the step of
setting the second design standard with a second damage-tolerance factor that is greater than the first damage tolerance factor.

24. (Currently amended) The method of claim 14, wherein the step of preparing includes the step of
preparing the adherent, weather-resistant, discoloration-resistant indicator paint as a mixture of the first reactant and the second reactant.